

Application No.: 09/954751

Case No.: 55814US004

Rejections

Claims 1 and 3-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson, et al., 5, 679,067 in view of Barber, Jr., et al., 5,518,794. In making this rejection the Office Action indicates in Section 3 of the Office Action that the Application currently names joint inventors. It further indicates that in considering the legality of the claims under 35 U.S.C. § 103(a), the Office Action presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. The undersigned acknowledges that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made.

In rejecting claims 1 and 3-13 under 35 U.S.C. § 103(a), the Office Action indicates that Johnson, et al. ('067) discloses a molded abrasive brush having a backing with a plurality of bristles extending therefrom, the backing and bristles being integrally molded (Abstract). The Office Action further indicates that Barber, Jr., et al. ('794) shows in Fig. 4, a unitary brush, but not a brush with the bristles molded from the same mass of material. The Office Action further indicates that it "would have been obvious to one of ordinary skill to have provided '067 with the first and second coating of adhesive and abrasive coating, as taught by '794, column 1, lines 39-47 to prevent the bristles from taking a set shape, softening and losing its effectiveness." It is submitted that this conclusion is only made by hindsight reasoning and is contrary to the teaching of each of these references.

It is submitted that one skilled in the art would not combine Barber, Jr., et al., and Johnson, et al. to arrive at the claimed invention. Barber, Jr., et al.'s invention deals with formed filament cores that are coated with molten thermoplastic elastomer (TPE) which contains abrasive particles. The abrasive particles may be applied to a coating of the TPE coated core by projecting abrasive grains toward the TPE-coated pre-formed core but that is not Barber, Jr., et al.'s preferred method of making the coated preformed core filaments. See, for example, column 22, lines 7-14:

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Abrasive particles may be applied to a TPE-coated core by projecting the abrasive grains toward the TPE-coated preformed core by force, such as electrostatic force. However, the preferred method is the first mentioned one, wherein one or more preformed cores are passed through a die which at least partially coats the preformed cores with molten, abrasive-filled TPE, and the molten TPE cooled to form the hardened composition.

Rather than forming abrasive brushes with a preformed core which includes filaments made of the same mass as the core, Johnson, et al. incorporate the abrasive filaments to an abrasive brush, for example, as noted in column 21, lines 49-62:

The composite abrasive filaments of the invention can be incorporated into brushes of many types and for myriad uses, such as cleaning, deburring, radiusing, imparting decorative finishes onto metal, plastic, and glass substrates, and like uses. Brush types include wheel brushes, cylinder brushes (such as printed circuit cleaning brushes), mini-grinder brushes, floor scrubbing brushes, cup brushes, end brushes, flared cup end brushes, circular flared end cup brushes, coated cup and variable trim end brushes, encapsulated end brushes, pilot bonding brushes, tube brushes of various shapes, coil spring brushes, flue cleaning brushes, chimney and duct brushes, and the like. The filaments in any one brush can of course be the same or different.

No mention is made in Barber, Jr., et al. of the type of unitary brush defined in the claims of the present application.

Johnson, et al. would not want to make a brush by the method described in Barber, Jr., et al. On the contrary, Johnson, et al.'s method of making a brush is described in the paragraph bridging columns 3 and 4 of the Application as follows:

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The present invention also includes a method of making a molded abrasive brush. The method comprises the steps of: a) mixing a moldable polymer and abrasive particles together to form a mixture; b) heating the mixture to form a flowable material; and c) injecting the flowable material under pressure into a mold to form an abrasive brush, wherein the brush comprises: a generally planar flexible base having a first side and a second side, and a plurality of bristles have an aspect ratio of at least 2 and are integrally molded with the base. In another aspect of the inventive method, step a) comprises mixing a thermoplastic elastomer with abrasive particles. In a further aspect of the inventive method step a) further comprises mixing a lubricant with the mixture.

As can be seen, Barber, Jr., et al.'s method of making brushes and Johnson, et al.'s method of making brushes are different and incompatible with each other and with that claimed in the present Application. The Office Action indicates that the claims are not claiming a method, but a product produced by the various methods.

The products of the claimed invention, Barber, Jr., et al. and Johnson, et al., would be completely different in many respects. Barber, Jr., et al.'s abrasive coated bristles would require cutting into segments, assembly and adhesive or mechanical fastening to a core and would not result in a brush with a hub or body and bristles which are attached to the body or hub without adhesive bonding or mechanical fastening of bristles to the hub or body. Barber, Jr., et al.'s abrasive particles are adhered to the exterior of the core filaments, whereas Johnson, et al.'s particles are contained within the filaments, not on their surface. The present applicants' claims require that the article is a unitary brush comprised of a hub or body and bristles which are attached to the body or hub and are formed of the same mass of material as the hub or body without adhesive bonding or mechanical fastening of the bristles to the hub or body. The bristles are covered at least over a portion of the bristle surfaces with an adhesive coating which adheres the abrasive particles to the surface of the bristles.

Barber, Jr., et al. does not disclose utilizing a unitary brush having a hub or body and bristles which are attached to the hub or body and formed of the same

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mass of material as the hub or body without adhesive bonding or mechanical fastening of the bristles to the hub or body.

While Johnson, et al.'s bristles are attached by the same mass of material to a base, there is no indication that Johnson, et al. would want to apply the abrasive particles in a coating onto the surface of the bristles. Johnson, et al. fails to teach coating the bristles with additional binder so that additional abrasive grains may be applied. The teaching of Barber, Jr., et al., Johnson, et al. and the present claimed invention go in three different directions. One skilled in the art would not alter Barber, Jr., et al. by using the teaching of Johnson, et al. since that would be contrary to the teaching of each of these references. To be an appropriate combination of references, there must be some indication in the references that one skilled in the art would combine them. This is totally absent for the combination of Johnson, et al. and Barber, Jr., et al. Barber, Jr., et al. seek an abrasive wheel with abrasive coated filaments that are cut into segments and bound together on a hub. Johnson, et al. mold an abrasive article, not wanting abrasive coated filaments, but relying instead on abrasive particles contained with the molded filaments. By contrast, the present invention provides an abrasive brush wherein the hub and bristles are formed of the same mass of material without adhesive bonding or mechanical fastening. The bristles are coated at least in part with an adhesive coating to which abrasive particles are adhered. One skilled in the art would not alter Barber, Jr., et al. by the teaching of Johnson, et al. since it would be contrary to the teaching of each reference to make this combination.

Claim 3 further defines the article of claim 1 to include a second coating over the abrasive particles and the first coating. Neither Johnson, et al. nor Barber, Jr., et al. teach this. Claim 8 further defines claim 3 to indicate that the second coating comprises a material selected from the group consisting of polyurethanes, epoxy resins, and acrylic resins. There is no teaching of applying a second coating to the brush which has a hub or body and bristles which are attached to the hub or body and are formed of the same mass of material as the

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hub or body without adhesive bonding or mechanical fastening of bristles to the hub or body. Claim 5 further defines the article of claim 1 wherein the abrasive particles are partially embedded in the first coating, and there is no suggestion in either cited reference of coating a unitary brush on the bristles of a unitary brush as defined in claim 1, which has the abrasive particles partially embedded in the first coating. Further, claim 6 defines claim 1 to specify that the abrasive particles are selected from the group of silicon carbide, talc, garnet, glass bubbles, glass beads, ceramic boron nitride, diamond and aluminum oxide. There is no suggestion in a combination of Johnson, et al. and Barber, Jr., et al. of making a brush according to claim 1, thus, further definition of the abrasive particles in claim 6 is not taught in the combination of references cited by the Examiner. The cited references may disclose various abrasive particles which may be included in claim 6, since the combination of references fails to teach claim 1, this disclosure adds nothing further to the combination to render the claims obvious.

Claims 7-11 further define various aspects of the invention to specify coating material (claim 7), the second coating (claim 8), the type of brush (claim 9), the composition of the bristles (claim 10), that the bristles may further comprise abrasive particles embedded within the bristles (claim 11). Since the combination of references fails to teach claim 1, these further materials defined in these dependent claims are not taught in the combined teaching of Johnson, et al. and Barber, Jr., et al. While some of the materials may be described in the cited references, they add nothing further to the combination of references to render obvious these claims.

Claim 13 is not taught by the combination of references cited by the Examiner since there is no indication of the desirability of applying a coating of adhesive over at least a portion of some of the bristle surfaces in an injection molded brush having a hub or body and bristles which are attached to the hub or body and are formed of the same mass of material as the hub or body without adhesive bonding or mechanical fastening of bristles to the hub or body.

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It is submitted that the making of the rejection final in the Office Action mailed October 24, 2003 is inappropriate because this is a new ground of rejection. The Examiner is respectfully requested to withdraw the finality of this rejection to afford applicants an opportunity to fully request reconsideration of this rejection.

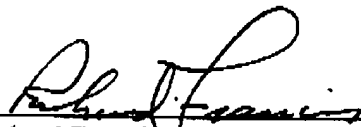
It is submitted that claims 1 and 3-13 are in condition for allowance and such action is accordingly earnestly solicited.

Respectfully submitted,

Date

12/16/03

By:


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